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(FILE 'HOME' ENTERED AT 17:18:16 ON 22 SEP 2001)

FILE 'REGISTRY' ENTERED AT 17:18:20 ON 22 SEP 2001

FILE 'REGISTRY' ENTERED AT 17:18:30 ON 22 SEP 2001

L1 17 (2<AL<20 AND 0<ZN<10 AND 0<SN<15 AND 0<MN<2 AND 50<MG)/MAC

FILE 'HCA' ENTERED AT 17:19:14 ON 22 SEP 2001

L2 10 L1
SELECT L2 IPC 1 3 7

L3 96440 E1-3

L4 9321 (MAGNESIUM OR MG) AND (TIN OR SN) AND (ZINC OR ZN) AND (ALUMINU

L5 1189 L3 AND L4

L6 129 L5 AND GRAIN?

AN 71:41699 HCA
TI Extruded and formed objects from **magnesium**-lithium **alloys**
IN Foerster, George S.
PA Dow Chemical Co.
SO Fr., 4 pp.
CODEN: FRXXAK
DT Patent
LA French
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI FR 1534886		19680802	FR	19670621

AB The addn. of certain quantities of Pb or **Sn** to **Mg**-Li **alloys**, followed by extrusion and hardening by annealing, increases the alloys' resistance. In particular the apparent limit of elasticity during tension, the resistance to rupture during tension, and the corrosion resistance in saline water are all increased. The process consists of heating to 300-425.degree., an **Mg alloy** contg. Li (0.4-2.0), **Sn** (3-20) or Pb (3-20) or a mixt. of Pb and **Sn** (total 3-20), **Al** (0-4), **Mn** (0-2), **Zn**, (0-3), and Zr (0-0.2%). The hot alloy is extruded under pressure through a die at a speed of at least 15 m./min. and is then hardened by annealing at 120-320.degree. immediately after extrusion. Alternatively alloys contg. **Sn** can be advantageously quenched in water immediately after extrusion and then annealed as above. At 175.degree. satisfactory hardening occurs within 24 hrs.

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AN 68:89493 HCA
TI Powder-metallurigical manufacture of **magnesium alloys**
IN Foerster, George S.
PA Dow Chemical Co.
SO Ger., 4 pp.
CODEN: GWXXAW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1259578		19680125		
PRAI	US		19590501		

AB In the manuf. of **Mg alloys** having a heterogeneous and finely grained structure because of a finely dispersed metal phase in the **alloy**, molten **Mg** or a molten **Mg alloy** contg. metal addns., e.g., Mg9Ba, Mg2Co, Mg2Ge, Mg3Sb2, Mg2Si, or Mg9Sr which are sol. in the melt, but sol. only up to 0.1% below the solidus temp., are sprayed in the form of small droplets, cooled below the solidus temp., and mech. worked in a known manner, e.g., by extrusion pressing. The mech. strength of the **Mg alloys** may be further improved by addns. of **Mn** .ltoreq.2.5, **Al** .ltoreq.13, **Zn** .ltoreq.9, Ag .ltoreq.16, Bi .ltoreq.11, Ca .ltoreq.1, Li .ltoreq.15, **Sn** .ltoreq.16, Zr .ltoreq.1, Th .ltoreq.8, rare earth metals .ltoreq.2%.

≤13 Al
≤9 Zn
≤16 Sn
≤2.5 Mn
≤2 REM
≤1 Ca
Si
Sr
Sb

Mg

Examiner's Copy

AN 71:104643 HCA
TI **Magnesium alloys**
IN Winter, Heinrich
PA Norsk Hydro-Elektrisk Kvaelstofaktieselskab
SO Ger., 2 pp.
CODEN: GWXXAW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1301914	B	19690828	DE 1967-N30523	19670517
	NO 120334	B	19701005	NO 1968-1929	19680516
PRAI	DE 1967-N30523		19670517		

AB **Mg alloys** of high mech. strength at high temp. (200.degree.) are made by incorporating rare metals, such as Ce, in the **Mg** matrix in the form of silicides. The rare metal silicide forms a ternary eutectic with the **Mg** and is distributed within the **Mg** matrix. Addnl. elements, such as **Al**, **Zn**, **Mn**, Ca, Ag, Cd, **Sn**, and Be can also be incorporated to further improve the mech. properties. Thus, a **Mg. alloy** was made from **Al** 3, **Zn** 1, Ce 3.25, Si 1.34 wt. %, **Mg balance**. This alloy, when kept at 200.degree. for 100 hrs. under a load of 3 kg./mm.2, exhibited an elongation of 0.37%, while the same alloy without Ce showed an elongation of 0.74% under the same conditions. The alloys are suitable for casting, particularly when the following elements are included (max. shown), **Zn** 7, **Al** 10, **Mn** 2, Ca 1, Ag 5, Cd 5, **Sn** 5, and Be 0.01 wt. %.

≤ 10% Al
≤ 7% Zn
≤ 5% Sn
Mg

< 1% Ca
3.25% Rem.

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AN 71:24334 HCA
TI Heat-resistant **magnesium alloy** with good casting properties
IN Winter, Heinrich
PA Norsk Hydro-Elektrisk Kvaelstofaktieselskab
SO Norw., 4 pp.
CODEN: NOXXAJ
DT Patent
LA Norwegian
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	NO 20675		19681117		
PRAI	DE		19670517		

AB This **Mg-base alloy** contg. **Al** .ltoreq.10, **Zn** .ltoreq.7, .ltoreq.**Mn** .ltoreq.2, Ca .ltoreq.1, Ag .ltoreq.5, Cd .ltoreq.5, **Sn** .ltoreq.5, Be .ltoreq.0.01 wt. % is characterized by also contg. 0.5-5% rare earth metals, e.g., Ce, and 0.2-3% Si. It has improved tensile strength when hot, e.g., at 200.degree..

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AN 71:73500 HCA
TI Deformed **magnesium-base alloy**
IN Drits, M. E.; Sviderskaya, Z. A.; Trokhova, V. F.
PA Baikov, A. A., Institute of Metallurgy
SO U.S.S.R., Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1969, 46(14), 76
CODEN: URXXAF
DT Patent
LA Russian
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	SU 241679		19690418	SU	19670929

AB To increase the plasticity, the following alloy was produced: Li 7-9, **Al** 4-6, **Sn** 2-4, **Zn** 0.8-2, **Mn** 0.15-0.5, Na .ltoreq.0.01, and **Mg** the **remainder**.

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AN 76:102994 HCA
TI Structure and properties of semifinished products made of ultralight alloys
AU Drits, M. E.; Gur'ev, I. I.; Sviderskaya, Z. A.; Elkin, F. M.; Trokhova, V. F.
CS USSR
SO Tekhnol. Legk. Splavov. Nauch.-Tekh. Byul. Vses. Inst. Legk. Splavov (1971), No. 2, 9-16
From: Ref. Zh., Met. 1971, Abstr. No. 10I546
DT Journal
LA Russian
AB Data are given on mech. and phys. properties of pressed and rolled Mg-Li alloys contg. Li 5, Zn 1, Sn 1, Mn 0.4, rest Mg (IMV1); Li 8, Al 5, .degree.n 1, Cd 4, Mn 0.4, rest Mg (IMV2); Li 8, Al 5, Zn 1, Sn 3, Mn 0.4, rest Mg (IMV 2-1); and Li 14, Zn 5, Sn 0.2, and Mg traces (IMV3). IMV2 has the most favorable combination of strength and plasticity: Brinell hardness 79, tensile strength (.sigma.B) 28.3, yield point (.sigma.T) 21.8 kg/mm2, and elongation .delta. 6.8 in the longitudinal direction and 27.4, 20.5, and 9.7, resp., in lateral direction at a much higher compressive strength than std. Mg alloys. Mech. properties and stress-rupture strength, detd. during a 75-hr test at 600-100.degree., indicate that IMV1, IMV2, and IMV2-1 alloys can be used up to 100.degree. and IMV3 alloy up to 60.degree..

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AN 77:8981 HCA
TI Ultralight magnesium-lithium alloys based on the .alpha.+.beta. two-phase region
AU Drits, M. E.; Sviderskaya, Z. A.; Trokhova, V. F.
CS USSR
SO Strukt. Svoistva Legk. Splavov (1971), 118-22. Editor(s): Korol'kov, A. M. Publisher: "Nauka", Moscow, USSR.
CODEN: 24YAAA
DT Conference
LA Russian
AB A study of the effect of alloying addns. on the structure and the properties of Mg alloys with Li belonging to the two-phase .alpha. + .beta. region (7-10 wt. % Li) established the pos. effect of Al, Sn, Cd, Zn, and Mn on the properties of these alloys. The best combination of strength properties and plasticity in the deformed state was achieved for alloys contg.: Li 7.0-9.0, Al 4.0-6.0, Sn 2.0-4.0, Zn 0.8-2.0, Mn 0.15-0.5%, rest Mg; and Li 7.0-10.0, Al 4.0-6.0, Cd 3.0-5.0, Zn 0.8-2.0, Mn 0.15-0.5%, rest Mg. Both alloys can easily be extruded on heating the rods to 280-320.degree. and can be rolled into sheets at 300-50.degree.. Mech. properties of the alloys prepd. by testing of hot-extruded rods and of sheet material on fabrication of the samples in longitudinal and transverse directions relative to the rolling direction, were detd. With respect to strength and plasticity, the alloys are not as good as those of .alpha.-phase Mg-Li alloys, but they are considerably better than those based on the .beta.-phase. For sheet material, there is practically no anisotropy in the longitudinal and the transverse directions. A study of the microstructure of the alloys and of the effect of individual alloying components shows that the main factor providing high strength is the presence of a Mg-rich solid soln. of a complex compn. with not only Al and Li addns., but also Sn and (or) Cd addns. playing a strengthening role. The presence of Li also increases the plasticity.

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AN 82:159590 HCA
TI Magnesium alloy
IN Al'tman, M. B.; Malinkovich, A. N.; Mitrofanova, M. F.; Blyablin, A. A.; Shmilovich, A. R.
PA USSR
SO U.S.S.R.
From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1974, 51(39), 72.
CODEN: URXXAF
DT Patent
LA Russian
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI SU 447452	T	19741025	SU 1968-1500810	19681213

AB Sn is added to the Mg alloy to stabilize its mech. properties. Thus, the Mg alloy contained Li 7.9, Al 3.5-4.5, Zn 1-2, Mn 0.3-0.5, misch metal 0.2-0.8, and Sn 0.3-0.8%. The misch metal contained Nd 55-60, La 25-30, and Ce 8-10%.

3.5-4.5 Al

1-2 Zn

0.3-0.8 Sn

0.3-0.5 Mn

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AN 114:28384 HCA
TI Manufacture of vibration-damping **magnesium alloy** by ingot casting
IN Yamauchi, Goro; Mino, Masato
PA Nippon Telegraph and Telephone Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02047238	A2	19900216	JP 1988-197520	19880808

AB The vibration-damping **Mg alloys** for structural parts are prepd. by inoculating molten **Mg** with H and 0.1-10% **Al**, Si, P, Ca, Ti, V, Cr, **Mn**, Fe, Co, Ni, Cu, **Zn**, Ga, Ge, Y, Zr, Nb, Mo, As, Cd, In, **Sn**, Sb, and/or Bi as a solid soln. or hydride. The inoculated **Mg-alloy** melt is cast, and the resulting ingots are forged, rolled, and then heat-treated in flowing H at 90.degree.-solidus temp. The alloy product shows a good vibration damping at .gtoreq.1 kHz.